

AN ELECTRON MICROSCOPE MAGNIFICATION STANDARD PROVIDING PRECISE CALIBRATION IN THE MAGNIFICATION RANGE 5000X–2000,000X

Abstract

A method and calibration standard for fabricating on a single substrate a series of crystalline pairs such that the d-spacing difference between the pairs will generate Moire fringes of the correct spacings to optimally calibrate the magnification settings of an electron microscope over a variety of magnification settings in the range of 5000X to 200,000X. The invention enables the tailoring of Moire fringe spacings to a desired magnification setting for calibration purposes by fabricating a series of patterns on a single substrate whereby each magnification setting is easily calibrated using a specific SGOI structure that is selected by a simple x-y translation across the top plan surface of the SGOI structure, therein eliminating the need for removing calibration samples in and out of the electron microscope. The method and calibration standard may be used for calibrating electron microscopes, such

as, scanning transmission electron microscopes and transmission electron microscopes.